

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/EP2004/009580

International filing date (day/month/year)
27.08.2004

Priority date (day/month/year)
27.08.2003

International Patent Classification (IPC) or both national classification and IPC
F01K23/06, F02G5/02, F01K23/10, F02C6/18

Applicant
FREEPOWER LTD

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☒ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☒ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1b/s(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material:
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing:
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

Box No. II Priority

1. ☒ The following document has not been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. ☐ The International Searching Authority has not been able to consider the validity of the priority claim because a copy of the earlier application whose priority has been claimed was not available to the International Searching Authority at the time that the search was conducted (Rule 17.1). This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

4. Additional observations, if necessary:

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

- ☐ the entire international application,
- ☒ claims Nos. 34-87, 101-111

because:

- ☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):
- ☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):
- ☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
- ☒ no international search report has been established for the whole application or for said claims Nos. 34-87, 101-111
- ☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:
 - the written form ☐ has not been furnished
 - ☐ does not comply with the standard
 - the computer readable form ☐ has not been furnished
 - ☐ does not comply with the standard
- ☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-bis of the Administrative Instructions.
- ☐ See separate sheet for further details

Box No. IV Lack of unity of invention

1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees, the applicant has:
- ☐ paid additional fees.
 - ☐ paid additional fees under protest.
 - ☒ not paid additional fees.
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is
- ☐ complied with
 - ☒ not complied with for the following reasons:
see separate sheet
4. Consequently, this report has been established in respect of the following parts of the international application:
- ☐ all parts.
 - ☒ the parts relating to claims Nos. 1-33,88-100

Box No. V Reasoned statement under Rule 43b/s.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	5-10,15,17-20,22,24,26-27,29,31,33,88-100
	No: Claims	1-4, 11-14, 16, 21, 23, 25, 28, 30
Inventive step (IS)	Yes: Claims	
	No: Claims	1-33,88-100
Industrial applicability (IA)	Yes: Claims	1-33,88-100
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item IV.

The application lacks unity within the meaning of Rule 13 PCT for the following reasons:

The separate inventions/groups of inventions are:

- 1-33,88-100
An energy recovery system comprising a first heat exchanger, an expansion unit, an electromechanical conversion unit and a cooling system
- 34-50
A radial inflow turbine unit comprising a housing, a shaft, a turbine comprising a first and a second stage.
- 51-68
A bearing for supporting a shaft comprising a bearing member.
- 69-87
A rotary magnetic coupling comprising a first and a second rotary member.
- 101-111
A working fluid purification system comprising an expansion tank, a diaphragm and a control valve

They are not so linked as to form a single general inventive concept (Rule 13.1 PCT) for the following reasons:

There is no link between the inventions claimed in claims 1, 34, 51, 69 and 101 in terms of the same or corresponding "special technical features" that define a contribution that the claimed invention considered as a whole makes over the prior art.

The application relates therefore to a plurality of inventions, or groups of inventions, in the sense of Rule 13.1 PCT. No further invitation to pay further additional fees will be issued. This is because Article 17(3)(a) PCT stipulates that the ISA shall establish the International Search Report on those parts of the international application which relate to the invention first mentioned in the claims ('main invention') and for those parts which relate to inventions in respect of which the additional fees were paid. Neither the PCT nor the PCT guidelines provide a legal basis for further invitations to pay further additional search fees (W17/00, point 11 and W1/97, points 11-16).

Re Item V.

- 1 The following documents are referred to in this communication:
- D1 : US 2002/047267 A1 (BATSCHA DANNY ET AL) 25 April 2002 (2002-04-25)
 - D2 : EP 1 249 580 A (HONDA MOTOR CO LTD) 16 October 2002 (2002-10-16)
 - D3 : US 3 234 735 A (SAGE WARNIE L ET AL) 15 February 1966 (1966-02-15)
 - D4 : EP 0 098 481 A (BBC BROWN BOVERI & CIE) 18 January 1984 (1984-01-18)
 - D5 : WO 98/25019 A (AUSTRIAN ENERGY & ENVIRONMENT ; FERCHER ERICH (AT); BRAENDLE BERND (AT) 11 June 1998 (1998-06-11)
 - D6 : EP 1 016 775 A (ORMAT IND LTD) 5 July 2000 (2000-07-05)
 - D7 : US 4 468 923 A (JORZYK SIGURD ET AL) 4 September 1984 (1984-09-04)

2 INDEPENDENT CLAIMS 1 AND 88

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.

Document D1 discloses an energy recovery system comprising a first heat exchanger (13E, fig.1), an expansion unit (16E), an electromechanical conversion unit (18E) and a cooling system 21E as described in claim 1.

Also the other documents cited with an "X" in the search report are considered novelty destroying documents. The most relevant passages are cited in the search report.

The features describing the control of the alternator are merely one of several straightforward possibilities from which the skilled person would select, in accordance with circumstances, without the exercise of inventive skill, in order to solve the problem posed so that the subject-matter of claim 88 does not involve an inventive step in the sense of Article 33(3) PCT.

3 DEPENDENT CLAIMS 2-33, 89-100

Dependent claims 2-4, 11-14, 16, 21, 23, 25, 28, 30 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty (Article 33(2)PCT). The most relevant passages are cited in the search report. Also the other dependent claims do not seem to contain features which meet the requirements of the PCT in respect of inventive step (Article 33 (3) PCT). They are considered merely one of

several straightforward possibilities from which the skilled person would select, in accordance with circumstances, without the exercise of inventive skill, in order to solve the problem posed.

The dependent claims describes furthermore different subject matters not having common technical features so that in future examination of amended claims unity problem may occur.

- 4 The invention is industrial applicable.

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